



Volunteer Lake Assessment Program Individual Lake Reports

SUNCOOK POND, LOWER, BARNSTEAD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	35,071	Max. Depth (m):	4.9	Flushing Rate (yr ⁻¹)	22.2	Year	Trophic class	Known Exotic Species
Surface Area (Ac.):	245	Mean Depth (m):	2.9	P Retention Coef:	0.31	1979	MESOTROPHIC	Variable Milfoil
Shore Length (m):	5,800	Volume (m ³):	2,916,500	Elevation (ft):	551	1992	OLIGOTROPHIC	

TROPHIC CLASSIFICATION

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

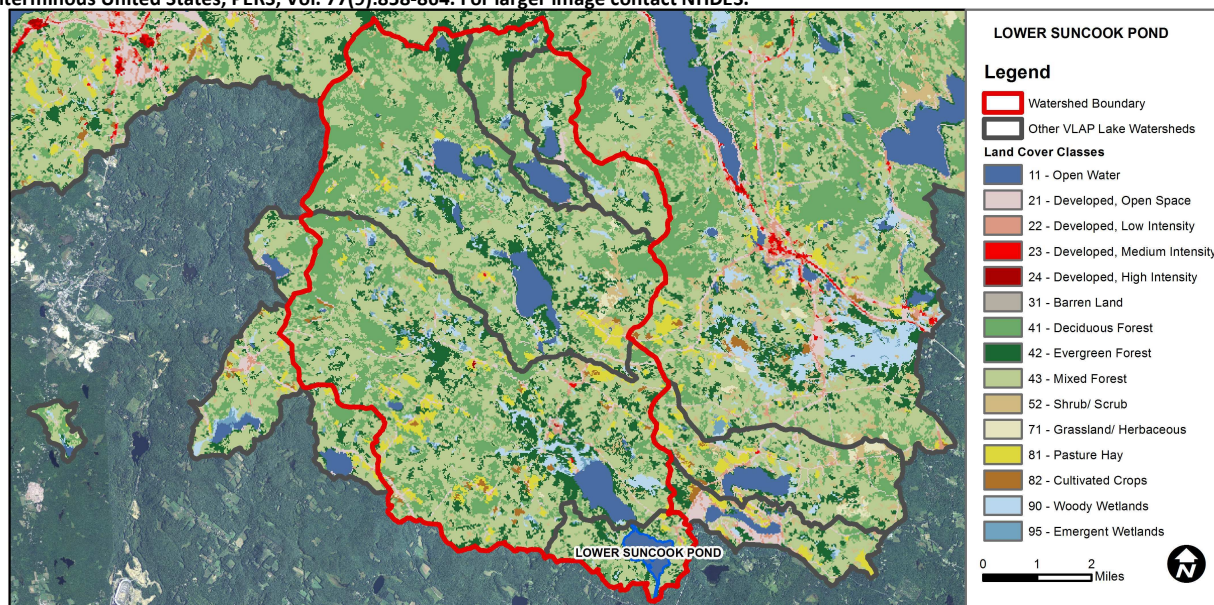
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	<5 samples and median is > threshold. More data needed.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Encouraging	< 10 samples and no exceedance of criteria. More data needed.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

UPPER SUNCOOK LAKE - TOWN BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
UPPER SUNCOOK LAKE - CAMP FATIMA BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.17	Barren Land	0.06	Grassland/Herbaceous	0.37
Developed-Open Space	1.9	Deciduous Forest	24.31	Pasture Hay	2.86
Developed-Low Intensity	0.3	Evergreen Forest	13.22	Cultivated Crops	0.45
Developed-Medium Intensity	0.02	Mixed Forest	45.37	Woody Wetlands	2.83
Developed-High Intensity	0.01	Shrub-Scrub	2.44	Emergent Wetlands	0.67



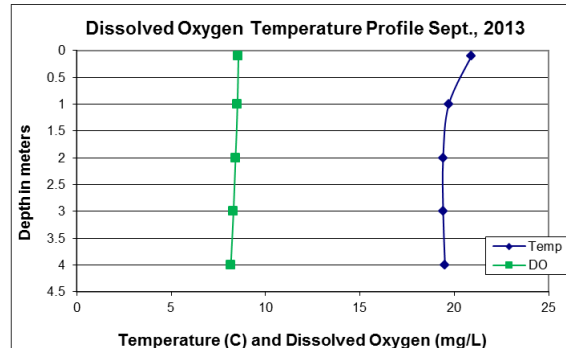
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

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2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- 🔥 **CHLOROPHYLL-A:** Chlorophyll levels were average and slightly less than the state median in September. Historical trend analysis indicates stable chlorophyll with low variability since 2003.
- 🔥 **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity and chloride was approximately equal to the state medians. Historical trend analysis indicates relatively stable epilimnetic conductivity with moderate variability since 2003.
- 🔥 **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low and less than the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus with high variability since 2003. Tributary phosphorus levels were low.
- 🔥 **TRANSPARENCY:** Transparency decreased slightly from 2012 and was lower than the state median. Transparency measured with the viewscope was much better than without and likely a better representation of actual conditions. Historical trend analysis indicates relatively stable transparency with high variability since 2003.
- 🔥 **TURBIDITY:** Deep spot and tributary turbidity were low.
- 🔥 **pH:** Deep spot pH levels were sufficient to support aquatic life, however historically have been less than desirable range 6.5 – 8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH with high variability since 2003.
- 🔥 **DISSOLVED OXYGEN:** Dissolved oxygen levels were high throughout the water column and sufficient to support aquatic life.
- 🔥 **RECOMMENDED ACTIONS:** Increase monitoring frequency to three times per summer, typically June, July and August, to better assess seasonal and historical trends and decrease data variability.



Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	NVS	VS	ntu	
Epilimnion	5.50	4.11	5	43.0	8	2.80	3.50	0.92	6.64
Hypolimnion				42.8	9			1.12	6.79
Morins Inlet			6	42.7	9			0.94	6.73
Narrows Rd Inlet			5	42.8	10			0.81	6.68
Outlet				43.0	8			0.77	6.76

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m³
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data highly variable.	Chlorophyll-a	Stable	Trend not significant; data show low variability.
Conductivity	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data highly variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.

